In the Claims

1. (Currently Amended) A method for making a plurality of electrical components and elements on a monolithic substrate having a first and a second parallel surface, essentially of a crystalline or polycrystalline wide-bandgap semiconductor compound in oxygen containing atmosphere, said method comprising, the steps of:

a. directing a focused laser beam onto a first surface portion of said substrate and causing relative motion between said beam and substrate so as to laser synthesize a conductive hole or via through said substrate between said first and second parallel surfaces thereof, said conductive hole or via having a first and second end;

b. directing said laser beam onto ~~said first~~ a second surface portion of said substrate and causing relative motion between said beam and substrate so as to laser synthesize an area thereon which is converted to a semiconductor material and which is connected to said first end of said conductive via;

c. directing said laser beam onto ~~said first~~ a third surface portion of said substrate and causing relative motion between said beam and substrate so as to delineate a continuous conductive trace connected to said semiconductive material on said first parallel surface to said second parallel surface as said laser beam traverses a surface of said substrate connecting said first and second parallel surfaces, and terminating said trace by forming ~~with~~ an electrical tab ~~formed~~ thereon by laser synthesis with said laser beam; and

d. directing said laser beam onto ~~said first~~ a fourth surface portion of said substrate and causing relative motion between said beam and substrate so as to laser synthesize an area thereon which is converted to an electrical conductive area connected to said second end of said conductive via, to

thereby provide an electrical connection to said semiconductive material on ~~the~~ a reverse side of said substrate.

2. (Currently Amended) A method for making a plurality of electrical components, elements and electro-conductive traces on a monolithic substrate having a first and a second reverse surface, essentially of a crystalline or polycrystalline wide-bandgap semiconductor compound, said method comprising, the steps of:

a. providing a monolithic wide-bandgap semiconductor compound substrate responsive to laser synthesis conversion;

b. directing a focused laser beam onto a surface portion of said substrate and causing relative motion between said beam and substrate so as to laser synthesize a plurality of electronic elements, electrical components and electro-conductive traces~~, including diodes, thermo-resistive, piezoresistive and chemoresistive sensors, (p-n-p) or (n-p-n)-type transistors, and (p-n-p)-type channel transistors thereon~~; and

c. directing said laser beam onto said substrate and causing relative motion between said beam and substrate so as to delineate electro-conductive traces thereon so as to form interconnections between said plurality of electronic elements and electrical components.

3. (Currently Amended) A method of claim 1 ~~2~~, in which a plurality of elements, components and electroconductors are also formed on said reverse side of said substrate, and are selectively connected to one another by conductive vias formed in and extending through said substrate.

4. (Original) A method for making a plurality of electrical components and elements on a film essentially of a crystalline or polycrystalline wide-bandgap semiconductor compound in a metallo-organic containing atmosphere, said method comprising, the steps of:

a. providing a vapor deposition chamber and system for depositing selected films on a support substrate contained therein ;

b. depositing a film of a crystalline or polycrystalline wide-bandgap semiconductor on a support substrate contained in said chamber by vapor deposition techniques;

c. providing a plurality of metallo-organic dopants containing gas/vapor for use in said chamber at selected processing steps to thereby cause chemical changes in selected areas of said film; and

d. directing a focussed laser beam onto a surface portion of said film disposed in said chamber and causing relative motion between said beam and film so as to laser synthesize a plurality of electronic devices and circuit elements thereon .

5. (Original) A method of claim 4, in which said laser is of a type selected from the group consisting of Nd:YAG, frequency doubled Nd:YAG or Excimer lasers, and said film is a wide-bandgap semiconductor compound of a material selected from the group including Aluminum Nitride, Silicon Carbide, Boron Nitride, Gallium Nitride or diamond.

6. (Currently Amended) A method of claim 4, in which said metallo-organic dopants ~~that~~ are selected from the group including di-borane, silane, phosphine, titanium tetra chloride, titanium ethoxide, aluminum sec-butoxide, tetra carbonyl, tungsten hexafluoride ~~hexafluride~~ and nitrogen.

7. (Currently Amended) A method for making a diode device laser synthesized directly onto a monolithic substrate ~~of~~ essentially of a crystalline or polycrystalline wide-bandgap semiconductor compound, said method comprising, the steps of:

a. providing a monolithic wide-bandgap semiconductor compound substrate responsive to laser synthesis conversion:

b. converting a first section of said substrate to a p-type semiconductive carrier by laser synthesis;

c. converting a second section of said substrate to a n-type semiconductive carrier by laser synthesis adjacent to said first p-type carrier section, to thereby form a junction therebetween; and

d. inscribing on said substrate by laser synthesis remote from said junction a first conductor connected to said first p-type section and a second electro-conductor connected to said second n-type section, to provide electrical connections to said p-type and n-type sections on said substrate to thereby form a p-n type carrier diode device on said substrate.

8. (Original) A method of claim 7, in which said monolithic wide-bandgap semiconductor compound substrate is of a material selected from the group consisting of Aluminum Nitride, Silicon Carbide, Boron Nitride, Gallium Nitride and diamond.

9. (Original) A method of claim 7, in which said laser is of a type selected from the group consisting of Nd:YAG, frequency doubled Nd:YAG or Excimer lasers.

10. (Currently Amended) A method for making a transistor device by laser synthesis directly onto a monolithic substrate ~~of~~ essentially of a crystalline or polycrystalline wide-bandgap semiconductor compound, said method comprising, the steps of:

a. providing a monolithic wide-bandgap semiconductor compound substrate having a reverse side ~~and~~ of essentially n-type semiconductive carriers responsive to laser synthesis conversion;

b. converting a first section of said substrate to a p-type semiconductive carrier by laser synthesis;

c. converting a second section of said substrate to a p-type semiconductive carrier by laser synthesis spaced apart from said first p-type carrier section, to thereby form a separation therebetween;

d. inscribing on said substrate by laser synthesis a first conductor connected to said first p-type section and a second conductor connected to said second p-type section, to provide electrical connections to said first and second p-type sections, respectively;

e. inscribing on said reverse side of said substrate a third ~~said~~ p-type section ~~sections~~ on said substrate, and a third conductor, said third conductors providing means for connecting said device to other ~~and~~ external components, elements and circuits, and to thereby provide a p-n-p type semiconductor transistor

11. (Original) A method for making a transistor device of claim 10, which includes the steps of placing said p-n-p transistor in a hermetically sealed chamber having a laser beam transmission window therein, and forming a first dielectric layer on a surface of said substrate disposed between said spaced apart p-type carrier sections and a second conductor layer on top of said dielectric layer by means of laser synthesis and various selected metallo-organic gases introduced into said chamber, and said laser

beam is directed into said chamber through said chamber window ~~for producing said dielectric and conductor layers on said device, to thereby produce a (p-n-p)-type channel transistor~~.

12. (Currently Amended) A method for making a transistor device of claim ~~7~~ ~~10~~, in which said laser is of a type selected from the group consisting of Nd:YAG, frequency doubled Nd:YAG or Excimer lasers , said substrate is a wide-bandgap semiconductor compound of a material selected from the group including of Aluminum Nitride, Silicon Carbide, Boron Nitride, Gallium Nitride or diamond and said gases are selected from the group consisting of phosphine gas, di-borane gas, tungsten hexafluoride ~~hexafloride~~ gas, titanium tetra chloride gas, titanium ethoxide gas, aluminum sec-butoxide gas silane gas and tetra carbonly nickel gas.